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ABSTRACT

This report identifies the major efforts which will be necessary to increase the representation of minorities in the medical profession on a nationwide basis. Part I, the introduction, highlights the gross underrepresentation of minority group members in the medical profession, and indicates the major emphases of the report, which are: (1) retention of students in the educational pathway leading to the medical profession; (2) financial assistance programs for medical students; and (3) recruitment of students into the educational pathway. Part II presents conclusions and recommendations concerning: (1) overall student financial problems in higher education; (2) short-term financing of minority medical students; (3) long-term financing of medical students; (4) establishment of regional opportunity centers to provide information about career opportunities for minority students in the health professions; and (5) expansion of the AAMC Office for minority student affairs. Part III presents estimates of the minority applicant pool, ways of increasing minority student enrollment, and an analysis of the problems in the retention and recruitment of students. Tables and references are included. (AF)

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REPORT OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES TASK FORCE TO THE INTER-ASSOCIATION COMMITTEE ON EXPANDING EDUCATIONAL OPPORTUNITIES IN MEDICINE FOR BLACKS AND OTHER MINORITY STUDENTS

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APRIL 22, 1970

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It is a pleasure to submit the report of the Task Force to the Inter-Association Committee on Expanding Educational Opportunities in Medicine for Blacks and Other Minority Students. The report emphasizes recommendations whose implementation will significantly increase minority representation in medical school within the next five years. This is not meant to suggest that such short-term efforts will yield an equitable representation of minority physicians in the population. It must be emphasized that progress toward achieving this goal will require the increased and long-term efforts of individuals, organizations, foundations, and the Federal government.

The efforts of those organizations that have been especially active for many years in addressing minority programs deserve recognition: The Josiah Macy, Jr. Foundation has supported many programs that have come to the attention of the Task Force; National Medical Fellowships, Inc. has for many years been the principle source of financial aid for Black medical students.

I would like to express my appreciation to the members of the Task Force and to the many other individuals whom the Task Force consulted in formulating its recommendations. I acknowledge with special appreciation the assistance of Mr. Gil Rodgers and Mr. Richard Bird, who acted as consultants to the Task Force, and to Miss Mary Lou Kilcline who assisted in preparing the report and provided needed critical advice.

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I. INTRODUCTION

This report is the product of a Task Force organized to investigate and to present to the Inter-Association Committee recommendations for increasing the representation of minority students* in U.S. medical schools and in the medical profession. The Task Force was supported by a grant from the Alfred P. Sloan Foundation, and held three meetings during the period February 5, 1970 to April 11, 1970. This report identifies the major efforts which the Task Force concludes will be necessary to increase the representation of minorities in the medical profession on a nationwide basis.

The long-term goal is to achieve equality of opportunity by reducing or eliminating inequitable barriers and constraints to access to this profession which have resulted in a representation of racial minorities in the medical profession much less than their representation in the U.S. population (Blacks comprise 2.2% of all physicians as contrasted to 11-12% of the U.S. population). A disproportional representation of minority students exists in medical schools as well (2.8% minority representation in medical schools as compared to 11-12% in U.S. population).

It is proposed as a short-term objective toward achievement of this goal that U.S. medical schools increase the representation of minorities in the M.D. degree programs from 2.8% currently to 12% by 1975-76. This would imply medical school enrollment targets rising from 660 first-year minority students in 1970-71 to 1800 in 1975-76.

* In this report minority groups are defined as those racial or cultural groups who are currently underrepresented in U.S. medical schools. These are Blacks, Mexican Americans, American Indians, and Puerto Ricans. Data presented use the Black minority as a proxy for all minority groups since information on other minority group representation in higher education and the medical profession is lacking. Blacks constitute 90% of the minority groups considered in this report and consequently they serve as an adequate proxy for all minority groups.

To achieve this objective, cooperative efforts by those groups responsible for and interested in the training of physicians in the U.S. will have to be vigorously pursued over the next five years. Because of the long period of time that a student must spend in the educational pathway in order to obtain his M.D. degree, many of the short-term efforts will not have a marked effect on the number of physicians in practice for many years. The long-term solutions are not neglected in this report, but the current gap between equitable representation of minority students in medical schools and their actual representation is so great that the Task Force believes highest priority must be given to solutions that will produce needed changes over the short term, that is, the next five years.

The Task Force recognized the enormous complexity of the problem and the many aspects which must be addressed before a complete and comprehensive set of recommendations could be made. As a result of the limited time and resources available, the Task Force concentrated on those aspects which were felt to have the greatest urgency. The constraints that limit the representation of minorities in the medical profession have been identified by analyzing the educational pathway leading to the M.D. degree. As a result of this analysis, it was concluded that the major emphasis for the Task Force should be placed on three areas: (1) the retention of students in the educational pathway leading to the medical profession, (2) financial assistance programs for medical students, and (3) the recruitment of students into the educational pathway.

The report uses definitions of retention and recruitment which differ importantly from usual connotation. Retention is defined as minimizing the exit of interested students from the educational pathway leading to the medical profession. Recruitment is defined as efforts to increase the number of students entering the educational pathway. To demonstrate the distinction, any program designed to reduce problems which cause students to drop out of the educational pathway is a retention program. An obvious and extremely important retention program is one designed to solve the financial problems of a student in his college years. A recruitment program, on the other hand, might be a program at the high school level that would expose a student to career opportunities in medicine and would lead him to a change in career goals.

At least three additional areas of investigation were recognized as important for

achievement of the long-term goal: (1) overall medical school financing, (2) increasing medical school class size, and (3) delivery of medical care services, particularly to the minority community. These three areas were not considered in depth by the Task Force, but suggest the need for future study.

II. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following major conclusions have been reached by the Task Force:

1. Major efforts should be focused on the problem of retention of minority students in programs which prepare students for careers in the medical profession. The most important factors in retention during premedical education are the availability of financial aid at the college level and the student's perception of its availability at the medical school level.

2. Similarly, the main barrier today for minority students in attending medical schools is the inadequacy of financial aid. Coincident with increasing enrollment of minority students in medical schools, Federal government and other sources of funds have been decreasing. The need is urgent for reversing this trend and establishing better mechanisms for utilizing available funds.

3. Another critical factor in retention and recruitment of minority students in medical education programs is the provision to students of accurate information and counseling on the medical profession. Counseling should be directed to those efforts which will help the student to fully realize his potential and to gain the confidence needed to pursue a career in medicine.

4. Existing medical school class size presents the major obstacle for increased production of physicians with the result that many capable students are not permitted to study medicine. Increases in class size are needed to meet the health care needs of the country for the minority community as well as the general population.

Recommendations

Financial - Overall Student Financial Problem in Higher Education

The financial obstacles that limit the premedical student's progress in his undergraduate years are not unique to medical education. The Task Force believes that this general problem of student finance is of such magnitude that it demands immediate Federal attention.

> **Therefore, the Task Force endorses the recommendations of the Carnegie Commission on Higher Education regarding student aid and related institutional grants as set forth in Quality and Equality: New Levels of Federal Responsibility for Higher Education (Ref. 10).**

The Task Force believes that the Commission's recommendations warrant the support of the Inter-Association Committee. Unless the problem of student finance at the undergraduate level is solved in the near-term, the flow of minority students into the professions will fall far short of the defined goals.

Financial - Short-Term Financing of Minority Medical Students

The Task Force recommends that a single national organization, such as National Medical Fellowships, perhaps augmented by a standing committee composed of representatives of concerned public and private institutions, be responsible for coordination, solicitation, and distribution of financial aid to minority students. The basic policy of the organization shall be to assure that all minority medical students with demonstrable financial need have sufficient funds to meet the expenses of attending the U.S. medical school of their choice.

The main functions of the organization will be:

1. To act as a central coordinating body for the multiple sources of financial aid for minority students, thus achieving better overall utilization of available resources.

2. To advocate increased medical school and Federal government financial support for minority medical students.

3. To solicit additional funds as required from private donors, foundations, national organizations, pharmaceutical firms, and other industrial concerns.

4. To allocate funds under its control so as to work toward an equitable distribution of funds on the basis of certified student need.

The following guidelines are suggested for policy on allocation and distribution of funds:

1. Direct grants would be provided to the student for tuition plus $500 up to a maximum of $2,500 during each of the first two years and up to $1,500 during each of the last two years.

2. Loans would be made available to the student of up to $1,500 during each of the first two years and up to $2,500 during each of the last two years. Secured loans should be provided through commercial lending institutions since this would (a) ease the administrative burden and (b) enable more students to receive funds.

3. Interest subsidies and repayment deferments would be provided for loans throughout the years of medical school and possibly for the periods of internship, residency, and military service. Postgraduate interest subsidy should be qualified as a function of income level.

4. Assessment of student financial need could be determined by one of the firms which currently provide need-analysis services, such as College Scholarship Service or The American College Testing Program.

Implications of the proposal for short-term financing of minority medical students are as follows:

1. The majority of the student's assumption of debt would occur after he has successfully completed his first two years and proven to himself and others his interest and ability to proceed to the M.D. degree.

2. The formula for determining maximum grant amounts would be responsive to cost differences among schools.

3. The distribution of funds directly to the student rather than indirectly via the medical school permits the student to attend the school of his choice without regard to its ability to provide financial support from its own resources.

4. The direct distribution of funds to the student serves to maximize the financial impact of the available funds by permitting the national organization to correct somewhat for the fact that the Health Professions Scholarship Program funds are currently distributed to the medical schools without regard to the number of enrolled students with low parental income.

5. The direct distribution of funds overcomes difficulties introduced by the uneven distribution of minority students among medical schools.

6. The adoption of a national organization with centralized financial aid responsibility will provide an attractive way for philanthropies and other institutions to funnel their funds to programs targeted at increasing

minority student representation in medical schools. It must be emphasized, though, that the national organization is intended not to replace any current funding efforts but rather to coordinate existing aid programs and to solicit additional funds as needed.

7. It is hoped that the interest subsidies and repayment deferments will make borrowing less unattractive and that the maximum levels set will not adversely affect length of postgraduate training, career choice, and practice location of minority students. Sample calculations, presented in Appendix C, indicate that a percentage-of-income payback schedule would not be unreasonable for physicians choosing low-remuneration practice. The average physician in such practice could repay a maximum $8,000 loan within six years of practice without unreasonable hardship.

8. The medical schools, in consultation with the national organization, would distribute to the minority students funds from the Health Professions Scholarship and Loan Programs and from the loan and grant programs privately administered by the medical schools. The national organization must establish guidelines with each individual school to effect an equitable distribution of funds.

Preliminary estimates of financial aid requirements were calculated for the proposed program; results are shown in Table I. These estimates were based on the following policy assumptions:

1. Health Professions Scholarships and Loans (for medical students) remain level at $5 million and $8 million respectively per year throughout the six years.

2. Health Professions Scholarships and Loans (for medical students) are allocated entirely to students with parental income less than $10,000.

3. Minority students receive these two types of aid in proportion to their representation among students with parental income less than $10,000.

The details of computational procedure and additional assumptions are presented in Appendix B.

As shown in Table I for the assumed program, total grants and loans needed for 1970-71 will be $2.16 and $1.76 million, respectively. The national organization will need to fund about $1.7 million in grants for 1970-71 and about $1.01 million in loans. The latter amount will be reduced to the extent that funds are made available through other programs such as the American Medical Association Education and Research Foundation Loan Guarantee Program (AMA-ERF) and the Federally Insured Student Loan Program (FISL). It is assumed that loan balances not met through these sources could be made available through commercial lenders by providing approximately 8% collateral as compensating balances and 10% interest payments. Table I provides an estimate of the maximum amounts needed for interest subsidy and collateral.

Table I - Funding Requirements

Academic Year	Number of Minority Students	Total Grants Required	Grants To Be Met	Total Loans Required	Loans To Be Met	Maximum Interest Subsidy	Maximum Compensating Balance as Collateral
			(in millions)				
1970-71	1,539	$2.16*	$1.74*	$1.76*	$1.01*	$ .10	$ .08
1971-72	2,169	3.04	2.49	2.49	1.61	.26	.21
1972-73	2,979	4.18	3.50	3.42	2.33	.50	.40
1973-74	3,834	5.38	4.57	4.40	3.04	.80	.64
1974-75	4,680	6.56	5.58	5.37	3.81	1.18	.94
1975-76	5,400	7.57	6.46	6.20	4.43	1.62	1.30

* The difference between "Total Grants Required" and "Grants To Be Met" and between "Total Loans Required" and "Loans To Be Met" is the assumed allocation of funds by medical schools from the Health Professions Loan and Scholarship Programs.

Financial - Long-Term Financing of Medical Students

The Task Force recommends that the Educational Opportunity Bank be considered as a long-term solution tc the problem of medical student financing.

The earnings potential for a physician is high and is rapidly increasing. If careful examination is made of the rate of return for the medical profession as a career alternative--taking into consideration the high costs during training, the lengthy time period of professional preparation, the opportunity costs of income foregone by not becoming something other than a physician, and the high salaries obtained during professional practice--the results are clearly very favorable for the medical profession. The computed economic rate of return on investment is in the range of fifteen to twenty percent which indicates an attractive investment alternative even if the money required for financing the investment (i.e., becoming a physician) were borrowed at market interest rates of nine to twelve percent.

The financial problem from the student's perspective, though, is not so much the overall return on investment but rather the negative cash flows (high expenditures with almost no income) occurring during the prolonged early training years. The student financial problem is known to present a troublesome hurdle to all medical students and is felt to pose a significant entry barrier to low-income students.

The Educational Opportunity Bank concept has received serious attention as a partial solution to the student financial problem (Ref. 6). The purpose of the Bank would be to provide loans to all qualified students to enable them to finance completely their educational costs at the medical school of their choice. No discrimination among recipients would exist, even with respect to the student's own economic resources. Loans would be available to cover the cost of tuition, books and other educational materials, and subsistence. Repayment of loans would not start until a student entered his professional career, and the amount of repayment could be based on an agreed percentage of income. Initial capital for the Bank could be raised through the sale of government bonds or by direct Federal subsidy.

This proposal has many attractive features: it would reduce inequities in

educational opportunities, it would not require determination of financial need, it would encourage educational innovation by making the student financially able to attend any school at which he could qualify, and it would allow schools to raise tuition.

An objection to the Educational Opportunity Bank voiced by some is that it is based on the idea of student self-financing of education. Some people argue against the concept by claiming that higher education should be considered as a public good which should be freely available to all and financially supported by all taxpayers rather than by the individual receiving the direct educational benefit. Fellowships, scholarships, and grants would be more palatable to this group than would loans. However, the social and economic ramifications of such a system are serious, and Friedman's conclusions (Ref. 4) in this regard should be carefully considered.

A major difficulty for the Educational Opportunity Bank concept is the relatively long time which would be required before the Bank could become self-financing. Practically no repayment income would be received before ten years of operation, and then repayment income would build up rather slowly as students gradually completed their education and began professional careers. During this lengthy start-up period external funding support for the Bank would be mandatory.

Motivational - Regional Opportunity Centers

The Task Force recommends that a network of regional centers be established to provide factual and personal information about career opportunities for minority students in the health professions.

These centers would serve a motivational purpose by enabling minority students to interact with physicians, medical students, and other health professionals in an atmosphere that is different from the typical academic setting. Also, the centers would provide a centralized location to which community organizations could refer students for assistance and could contribute information on community activities in the health field.

The regional centers would function at the interface between the minority community and the colleges and medical schools. It is anticipated that appropriate staffing of the centers would include minority students who have already gained experience in college and medical school. Student organizations may find that the centers will serve as focal points for community-based health projects.

The Task Force believes that an appropriate level of activity would be six regional centers, one of which would incorporate national coordination responsibility as well, and that annual funding of $500,000 would be sufficient support.

Informational - AAMC Office for Minority Student Affairs

The Task Force recommends that the AAMC seek the necessary funding to expand its office for minority student affairs. The opinion of the Task Force is that an office of minority student affairs with broader responsibilities can be a source of much useful information for prospective medical students, counsellors and advisors, and academic institutions.

Responsibilities of the office should include:

1. Collection and dissemination of information relating to opportunities for minority students in medicine.

2. Increasing the efficiency of matching applicants to medical schools by extended use of the Medical Minority Applicant Registry (MEDMAR).

3. Cooperation with the Medical College Admission Test (MCAT) Advisory Committee of the AAMC to minimize racial and cultural biases in the MCAT.

4. Evaluation of programs directed toward increasing minority enrollment in medical schools.

It is important that the experience gained by medical schools and other groups active in increasing minority representation be available for the guidance of others who have yet to embark upon such programs. The Task Force recognizes, for example, the efforts that are being made by medical schools to involve community groups in interpretation of qualifications of minority medical school applicants. The success of these and related efforts should be readily available to all medical schools. Accurate statistical information is essential for proper evaluation of the success of the efforts that are undertaken. Foundations and others who provide funds for new and innovative programs need access to as much information as possible in order to place wisely the limited funds that are available. The cost associated with an expanded office for minority student affairs is modest.

III. ANALYSIS

In order to analyze the problem in a systematic fashion, the Task Force has defined a student educational flow process which delineates the various states (college applicant, college student, etc.) through which a student usually passes in becoming a physician. The transitions from one state to another are then investigated to determine the reasons for student exit from the educational pathway at each stage.

Retention at any stage of the educational pathway relates to the efficiency of that stage; that is, minimizing the number of students who exit or maximizing the number who move successfully to the subsequent state in the pathway. Recruitment is defined by the Task Force as efforts toward attracting additional students into the educational flow leading to a given career choice - medicine in this case. Recruitment is by definition, career-oriented, whereas retention may be non-specific.

It is important to point out that the activities of most medical schools in recent years relating to the redistribution of minority students within a given pool are not, by our definition, recruitment. Such programs result in little increase in the applicant pool and, beyond the effect of maximizing the number of applications and acceptances from within the pool, are of questionable value within a framework of limited funds.

Estimates of Minority Applicant Pool

To reach conclusions on the relative need for retention and/or recruitment efforts, estimates of the anticipated minority applicant pool must be compared with enrollment targets and analyzed to determine which action programs should be emphasized.

Statistical data on the flow of minority students through the educational pathway are quite sparse, but some reasonable conclusions can be made. The numerical results of Appendix A are the basis for the analytical discussion which follows. Appendix A contains projected estimates of the minority applicant pool and minority enrollees through 1975-76. Basic assumptions (based on historical data) are 6% medical career interest among Black college freshmen as compared to 4-6% for white college freshmen, 25% probability of a minority college freshman interested in a medical career actually becoming an applicant to medical school as compared to a 35% probability for whites, and a 75% probability of a minority applicant being accepted to medical school as compared to a 45% probability for whites.

Assuming no additional recruitment or retention efforts directed toward minority students, the anticipated minority pool would fall decidedly short of the target pool as shown in Table II (Case I). This situation would produce an estimated minority enrollment percentage of only 9.2% in 1975-76 compared with a target of 11.9%. Clearly this deficit demands major recruitment/retention efforts.

There are four possible ways of increasing minority student enrollment:

1. Increase college enrollment of minority students.

2. Increase percentage of minority students interested in medical careers (recruitment).

3. Increase retention of interest in medical careers during college.

4. Increase probability of minority applicant selection.

Since only those students who have entered college by 1971-72 can qualify for admission to medical school by 1975-76, the first option could not have an effect upon the short-term objective. This means that action programs should focus primarily on post-high-school efforts.

Increases in the percentage of minority college freshmen interested in medical careers would seem unlikely since the current interest percentage of 6% for minority students is as great as or greater than that of 4-6% for whites. The current probability of a minority applicant being admitted to medical school is 75%, and it would be unwarranted to expect a significant increase in this probability since the corresponding probability for whites is only 45%.

Thus, the major possibility for accomplishing program goals within the specified time period would appear to be an increase in retention of medical career interest in college. An additional possibility would be compensatory post-baccaluareate programs which could increase the probability that a rejected applicant be admitted in a subsequent year. The maximal possible effects of these two alternatives were computed and are presented in Table II. Case II presents projections based on increasing the minority retention probability to equal the current 35% retention probability for whites. Case III shows projections based on a post-baccalaureate program which would enable 20% of the rejected applicants in any year to gain medical school admission the following year.

Minority group representation in medical schools in 1975-76 could be expected to increase toward a maximum of 12.9% if retention probability could be increased to that of whites and 9.7% with effective post-baccalaureate programs.

In summary, the maintenance of current efforts toward minority medical students will most probably result in a limited increase of minority students in medical schools, which will represent only about 75-80% of the targets. The most apparent manner to reach the targets is to increase the retention of interest in the medical profession during the premedical years of training.

Table II - Minority Pool and Enrollee Estimates - Alternative Cases

Academic year		70-71	71-72	72-73	73-74	74-75	75-76	Minority Percentage 75-76
Targets	Enrollees	660	1,000	1,200	1,400	1,600	1,800	11.9%
Case I:								
Maintain Current Retention Efforts	Applicants	870	880	1,275	1,470	1,650	1,800	
	Enrollees	653	659	956	1,103	1,238	1,350	9.2%
Case II:								
Increase Minority Retention to Equal White Retention	Applicants	1,218	1,229	1,785	2,058	2,310	2,520	
	Enrollees	914	922	1,339	1,544	1,733	1,890	12.9%
Case III:								
Post-baccalaureate Program (recycling of 20%)	Applicants	870	880	1,275	1,470	1,650	1,800	
	Enrollees	686	703	999	1,167	1,312	1,433	9.7%

Retention Within the Educational Pathway

Table III is a diagram of the educational pathway and the major reasons why students exit from it. The diagram also shows the various "action elements" - individuals, groups, or institutions - and their possible roles in minimizing the effects of the problems that have been identified. The diagram is not intended to be an exhaustive analysis, but is an attempt to define the most important problems that relate to each stage of the student's progress. Although the diagram is independent of the time the student spends in each stage, a student will normally require a minimum of twelve to thirteen years from entrance into high school to the completion of one year of postgraduate training.

Stage I: Becoming a Qualified College Applicant

The initial period of the educational pathway is definitely important in the context of the overall problem, but emphasis of the Task Force upon results by 1975-76 meant little consideration of this stage. Minority students now entering junior high school (7th grade), and about to consider career opportunities, will not complete the educational flow to the M.D. degree until 1983.

The relative complexity of exit reasons, including financial resources (family), environmental effects (family, peers, primary and secondary education, ghetto ecology, etc.), and perception of educational goals, makes this stage a difficult one to analyze. The existence of few relevant studies and little information leaves only judgment as a basis for conclusions.

Finance is often a problem even at this early stage because of limited family resources. Thus, students may be compelled to seek employment which may interfere with academic progress. Work-study programs could be a means of combatting this problem.

The interaction of minority community groups and elements of the health care professions in Neighborhood Health Centers furnishes a significant opportunity to counsel students on the educational requirements of the medical profession and to demonstrate to the student the opportunities for the profession to serve the

community. Interaction between the minority health professional and the student may provide role models to which the student can aspire with confidence.

Stage II: From Qualified College Applicant to College Student

A student's exit from the pathway at this stage may be due to financial factors (either actual or perceived), selection bias at the college level, or self-selection into vocational or other programs because of incorrect perceptions of his capability or of the requirements of the profession.

Two specific groups in stage II are worthy of mention. The perceived opportunities and actual financial problems of minority students as well as inadequate educational preparation often result in selection of a junior college rather than a four-year institution. In 1968-69, 23% of Black college freshmen were in junior colleges (Ref. 3), and only 15% of junior college enrollees are known to receive baccalaureate degrees (Ref. 5). Exit forces at this level are inadequate counseling and incorrectly perceived career opportunities which often result in these students' selecting terminal curricula as opposed to university-parallel curricula. Foundation support for innovative programs for counseling and retention of junior college students should be encouraged. Returning military veterans are a second group who should be encouraged to complete their college education by coordinated counseling efforts among the educational institutions, college placement services, the military, and minority community groups. The veteran, with benefits from the G.I. Bill, will not encounter one of the major problems faced by other college students - the financing of his education.

Stage III: From College Student to Qualified Medical School Applicant

The Task Force identified the problems of retention during the college years as being most critical if the short-term objectives are to be met. The inadequacy of financial aid for minority students enrolled in college is the primary reason students must interrupt or discontinue their college education. For this reason, a major recommendation endorsing the Carnegie Commission's suggested program of

Federal support for college students has been adopted by the Task Force. (See Financial Recommendation - Overall Student Financial Problem in Higher Education.) Counseling, directed at providing the student with advice as to the requirements for admission to medical school as well as the range of opportunities available to the minority student is lacking in many colleges. Improvement in premedical counseling can be achieved by closer liaison between the medical schools and the premedical advisors.

Stage IV: From Qualified Medical School Applicant to Medical Student

Problems at this level include possible cultural bias of the MCAT, limitations in class size of the medical schools, and possible prejudicial biases of admission committees.

For those students denied admission initially, two methods are suggested for increasing the number later gaining admission to medical school. In one method now in operation (the Post-Baccalaureate Fellowship Program at Haverford College), students not accepted into medical school are provided the opportunity to take an additional year of courses pertinent to meeting entrance requirements and can then reapply for admission in the subsequent year. In the second method, the medical school gives a conditional acceptance to the student and provides a special program in medical school to help him improve his academic background. The Post-Baccalaureate Program has had notable success; there are currently 15 to 20 students interested in medical careers enrolling annually in the Program, all but 2 or 3 of whom have been successfully enrolled in medical school after completing an additional year of training. The scattered results of the special medical school programs for minority students are difficult to assess at this early stage in their development, although such programs appear to have had some success on the basis of preliminary impressions.

Stage V: From Medical Student to M.D. Degree Recipient

This stage deals with the period of enrollment in medical school and has traditionally been considered as the "retention" phase. Students fail to complete

medical school because of insufficient financial aid, inadequate academic background, or insufficient motivation or interest.

The financial problem and a recommendation for its solution are treated in detail in section II of this report. Student motivation and interest can be sustained, in part, by flexible medical school curricula which provide opportunity for participation in programs, such as community medicine, which relate more directly to individual career goals. Motivational benefits could also be derived from participation in activities of the regional opportunity centers which are recommended in section II.

Table III - Potential Retention Efforts

EDUCATIONAL FLOW	REASONS FOR EXIT FROM FLOW	STUDENT	STUDENT GROUPS
I	Insufficient financial resources during high school	Work	
	Career/financial opportunities incorrectly perceived		Support high school career days
	Inadequacy of available education		Provide tutoring
	Incompatibility of student & his environment		
QUALIFIED COLLEGE APPLICANT			
II	Insufficient financial resources/aid to attend college	Work	
	Career/financial opportunities incorrectly perceived		
	Selection procedure prejudice & admissions bias		
COLLEGE STUDENT			
III	Insufficient financial resources/aid in college	Work	
	Career/financial opportunities incorrectly perceived		Support career clubs
	Insufficient financial resources/aid at later stages		
	Inadequate educational programs		Provide tutoring
QUALIFIED MEDICAL SCHOOL APPLICANT			
IV	Inadequate academic preparation	Study	
	MCAT bias & cultural differences		
	Selection procedure prejudice & admissions bias		
	Inadequate matching of applicants to med. school openings		
	Limited class size in medical schools		
MEDICAL STUDENT			
V	Insufficient financial resources/aid		
	Insufficient motivation or interest	Provide self-motivation	Support student associations
	Inadequate academic background		Provide tutoring
M.D. DEGREE RECIPIENT			

ACTION ELEME

ROUPS	EDUCATIONAL INSTITUTIONS	MINORITY COMMUNITY GROUPS	PRACTICING MEDICAL PROFESSION	OTHER PRIVATE AND INDUSTRY
	Expand work-study programs			
igh school career days	Expand work-study programs, improve counseling		Provide counseling	Support health
utoring	Improve education			
	Recognize problem & initiate changes			
	Increase grant/loan programs			
	Improve counseling			Provide colleg service for no
	Reevaluate & modify selection procedures			Encourage eval selection proc
	Expand work-study programs			
career clubs	Improve counseling		Provide counseling	
tutoring	Recognize educational objectives & modify programs			
	Improve educational program, post-baccalaureate programs			
	Assess MCAT & recommend changes			
	Reevaluate & modify selection procedures			
	Jointly initiate cooperative matching program			
	Expand class size, modify curriculum		Encourage expansion of class size	
	Expand aid or work-study programs		Expand financial assistance programs	Expand financ assistance pr
student associations	Promote relevancy of minority student programs		Conduct preceptorship programs	Fund precepto
tutoring	Identify problems early, employ special educational efforts			

Expand community-involvement programs

ION ELEMENTS

DICAL PROFESSION	OTHER PRIVATE ORGANIZATIONS AND INDUSTRY	AHA, AMA, AAMC, NMA (NATIONAL OR REGIONAL BASIS)	FEDERAL, STATE, LOCAL GOVERNMENT	FINANCIAL INSTITUTIO
			Expand existing aid programs	
ling	Support health career programs	Disseminate information (publications, films)		
			Fund educational improvement	
			Support programs	
			Expand grant/loan programs (gen	
	Provide college placement service for non-applicants	Disseminate information	Disseminate information	
	Encourage evaluation of selection procedures			
			Expand grant/loan programs (gen	
eling		Disseminate information		
			Expand grant/loan programs (r	
			Fund educational improvement	
		Match unsuccessful applicants to post-baccalaureate programs	Fund educational programs	
		Assess MCAT & recommend changes		
		Encourage evaluation of selection procedures		
		Operate matching program		
ansion		Encourage expansion of class size	Fund medical	
ial ograms	Expand financial assistance programs		Expand grant/loan programs	
ptorship programs	Fund preceptorship programs	Fund preceptorship programs		

, AAMC, NMA L OR REGIONAL BASIS)	FEDERAL, STATE, LOCAL GOVERNMENT	FINANCIAL INSTITUTIONS (BANKS)	FOUNDATIONS
	Expand existing aid programs		Fund work-study programs
ate information tions, films)			
	Fund educational improvement		Fund educational innovation programs
	Support programs		Support programs
	Expand grant/loan programs (general educational problem)		
ate information	Disseminate information		Support community group programs
	Expand grant/loan programs (general educational problem)		
ate information			
	Expand grant/loan programs (medical school level)		
	Fund educational improvement		Fund educational innovation programs
nsuccessful applicants -baccalaureate programs	Fund educational programs		Fund educational programs
MCAT & nd changes			Fund studies
ge evaluation of on procedures			
matching program			Fund matching program
ge expansion s size	Fund medical schools		
	Expand grant/loan programs		
ceptorship programs			
			Fund special programs

Recruitment into the Educational Pathway

The earlier analysis has indicated that recruitment, defined as efforts toward increasing interest in medical careers, appears much less important and has less potential than retention. However, since specific recruitment efforts might also have significant retention effects, a delineation of recruitment possibilities is still worthwhile.

The major functional categories of recruitment efforts seem to be the following:

1. Informational - to provide the student with information, through media such as brochures and films, which increases his knowledge of medical careers and opportunities.

2. Experiences - to give the student actual medically-related experiences, such as summer laboratory assistants or Neighborhood Health Center workers, which enable him to realize interaction with the medical environment.

3. Role-identification - to present to the student associations with real-life "models" of successful medical personnel, such as doctors, through whom he can identify with the personal image of the career.

Many possible recruitment efforts become immediately apparent from the above. Institutions could increase their dissemination of information regarding medical careers, communities and institutions could cooperatively conduct experience programs designed around community health centers or summer study, and minority physicians could make some efforts toward increasing their personal visibility in the community.

However, since retention has been deemed of much more consequence than recruitment, the Task Force has not addressed recruitment possibilities in any detail. The only major recommendation which pertains to recruitment concerns the regional opportunity centers described in section II.

APPENDIX A - PROJECTIONS OF NUMBER OF STUDENTS IN MEDICAL EDUCATION FLOW PROCESS FOR THE NEXT FIVE YEARS

This Appendix summarizes the results of calculations estimating the number of minority students who will be in the process of pursuing professional medical careers over the next five years. Based on the targets set for minority student representation in medical school, i.e., increasing the representation of minority students from 2.9% in 1969-70 to 12% in 1975-76, the numbers of first-year minority medical students are:

Academic Year	Number of Minority Students Entering Medical School	Percent Minority Students of Total Students
1970-71	660	3.9%
1971-72	1,000	5.3
1972-73	1,200	7.1
1973-74	1,400	8.9
1974-75	1,600	10.6
1975-76	1,800	11.9

The following assumptions are made:

1. Minority enrollment in college continues to grow at about the same rate as that for the past two years.

2. Of all minority college freshmen, 6% plan on professional medical careers (Ref. 9).

3. Of those minority college freshmen interested in medical careers, about 25% actually become applicants for medical school. This compared with about 35% for non-minority students (Ref. 8, Ref. 9).

4. About 75% of the minority applicants for medical school are admitted and become first-year medical students. This compares with about 45% for non-minority students (Ref. 8).

Table A summarizes the calculations for the following three cases.

Case I - Maintain Current Retention Efforts

Using the basic assumptions given above, projections are made for the number of first-year minority medical students for the next five years. The projected enrollment which results is only about 75-80% of the targeted numbers. The most direct way of increasing enrollment is to increase the probability that minority students will retain their interest in the medical profession in premedical training.

Case II - Increase Minority Retention to Equal White Retention

By increasing the probability of retention in premedical training from 25% to 35%, which is considered to be about the maximum level obtainable in the short run, the targets can be achieved as indicated in lines E_1 and F_1 of Table A. Actual enrollment figures are 914, 922, 1339, 1544, 1733, and 1890 for academic years 1970-71 through 1975-76.

Case III - Post-Baccalaureate Program

Special programs to increase the number of minority students entering medical school who have been previously denied admission have little impact in reaching the stated targets. If it is assumed that 20% (an optimistic figure) of the applicants who applied to medical school but did not get accepted were admitted the next year after completing such programs, it appears that the targets would not be met, except in 1970-71.

Table A - Projections of Number of Students in Medical Education Flow Process

Year Entering Medical School	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
(A) Minority (first year) college students (Class entering college four years prior to year entering medical school)	50,000*	56,000*	58,000	58,500	85,000	98,000	110,000*	120,000*
(B) Number of students (A) planning medical careers (Assumed to be 6% of (A))	3,000	3,360	3,480	3,510	5,100	5,880	6,600	7,200
(C) Number of minority students targeted in first-year medical school	---	---	660	1,000	1,200	1,400	1,600	1,800
Case I - Maintain Current Retention Efforts								
(D_1) Number of applicants for medical school (Assumed to be 25% of (B))	300-400 (actual)	600-700 (actual)	870	878	1,275	1,470	1,650	1,800
(E_1) Number of minority students enrolled in first-year medical school (Assumed to be 75% of (D_1))	---	450 (actual)	653	659	956	1,103	1,238	1,350
(F_1) Percent of target achieved	---	---	99%	66%	80%	79%	77%	75%
Case II - Increase Minority Retention to Equal White Retention								
(D_2) Number of applicants for medical school (Assumed to be 35% of (B))	---	---	1,218	1,229	1,785	2,058	2,310	2,520
(E_2) Number of minority students enrolled in first-year medical school (Assumed to be 75% of (D_2)	---	---	914	922	1,339	1,544	1,733	1,890

(E_1) Number of minority students enrolled in first-year medical school (Assumed to be 75% of (D_1))	---	450 (actual)	653	659	956	1,103	1,238	1,350
(F_1) Percent of target achieved	---	---	99%	66%	80%	79%	77%	75%

Case II - Increase Minority Retention to Equal White Retention

(D_2) Number of applicants for medical school (Assumed to be 35% of (B))	---	---	1,218	1,229	1,785	2,058	2,310	2,520
(E_2) Number of minority students enrolled in first-year medical school (Assumed to be 75% of (D_2)	---	---	914	922	1,339	1,544	1,733	1,890
(F_2) Percent of target achieved	---	---	138%	92%	112%	110%	108%	105%

Case III - Post-Baccalaureate Program

(D_3) Number of applicants for medical school (Assumed to be 25% of (B))	---	---	870	878	1,275	1,470	1,650	1,800
(E_3) Number of minority students enrolled in first-year medical school (Assumed that 20% of applicants not admitted in year applied are admitted next year)	---	---	686	703	999	1,167	1,312	1,433
(F_3) Percent of target achieved	---	---	104%	70%	83%	83%	82%	80%

* Estimate

APPENDIX B - FINANCIAL CALCULATIONS

Calculations of Estimated Total Aid Required

Estimates of the requirements for financial assistance are based on projections of the number of minority students with parental income under $10,000 anticipated to enter medical school in the future and total costs to the student. The calculations were made for the academic years 1970-71 through 1975-76.

Projections of Number of Students

The following assumptions were used in developing the projections summarized in Table B-1:

1. Growth in medical school enrollment would follow the general rising trends (adjusted to reflect the results of efforts to increase class size).

2. The percentage of students in medical schools whose parental income is less than $10,000 would increase from 37% in 1967-68 (Ref. 7) and in the years 1970-71 through 1975-76 would be: 39%, 41%, 43%, 45%, 45%, and 45%.

3. The number of minority students entering medical school in the years 1970-71 through 1975-76 would be: 660, 1000, 1200, 1400, 1600, and 1800.

4. The dropout rate would be 10%.

Table B-1 - Projections of Number of Students

Academic Year	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Total Students	39,253	40,620	41,888	43,156	44,265	45,292
Students whose parental income is less than $10,000	15,309	16,654	18,012	19,420	19,919	20,381
Total minority students	1,539	2,169	2,979	3,834	4,680	5,400
Percent minority students of total students	3.9%	5.3%	7.1%	8.9%	10.6%	11.9%

Estimation of Student Expenses

As a base it was assumed that a student's annual expenditures would be $5,000, $2,000 of which, on the average, would be supplied by personal funding (e.g., spouse's income, employment). This is based on the following factors:

1. In 1967-68, 77% of first-year medical students were single and 39% of fourth-year medical students were single (Ref. 7).

2. In 1967-68, married medical students received about 50% of their income from the earnings of their spouses (Ref. 7).

3. In 1967-68, the annual expenses of single first-year medical students were about $3,336, $1,500 less than those of married fourth-year medical students with no children, $5,859 (Ref. 7).

Because the cost figures are somewhat outdated and tuition and other costs are rapidly increasing, a second set of calculations was made which assumed that average annual financial aid of $4,000 per student would be needed. For computing total financial aid requirements, it was assumed that 85% of the minority students would have parental income less than $10,000 (Ref. 2).

Results are presented in Table B-II:

Table B-II - Total Aid Requirements

Academic Year	Total Aid Required ($3,000 per year)	Total Aid Required ($4,000 per year)
1970-71	$ 3,920,000	$ 5,230,000
1971-72	5,530,000	7,370,000
1972-73	7,600,000	10,130,000
1973-74	9,780,000	13,040,000
1974-75	11,930,000	15,910,000
1975-76	13,770,000	18,360,000

Calculations of Grant/Loan Mix for Meeting Aid Requirements

It is assumed that, on the average, the student would receive $2,000 in grants and $1,000 in loans during each of the first two years of medical school and $1,000 in grants and $2,000 in loans during each of the last two years. This results in approximately 55% of the aid requirements in the form of grants and 45% in loans. Applying the same grant/loan mix to average expenditures of $4,000 per year increases total grant requirements from $2.16 to $2.87 million, and total loan requirements from $1.76 to $2.36 million in the academic year 1970-71 as is shown in Table B-III.

Table B-III - Grant/Loan Financial Requirements

Academic Year	Based on $3,000 annual expenditures		Based on $4,000 annual expenditures	
	Grants Required	Loans Required	Grants Required	Loans Required
	(in millions)			
1970-71	$ 2.16	$ 1.76	$ 2.87	$ 2.36
1971-72	3.04	2.49	4.05	3.32
1972-73	4.18	3.42	5.57	4.56
1973-74	5.38	4.40	7.17	5.87
1974-75	6.56	5.37	8.75	7.16
1975-76	7.57	6.20	10.09	8.27

Calculations of Estimated Sources of Aid to Meet Requirements

1. It is assumed that Health Professions Scholarships and Loans will remain stable at $5 million and $8 million respectively throughout the six years and will be entirely allocated to students with parental income less than $10,000.

2. A further assumption is made that these two types of aid will be distributed to minority students with parental income less than $10,000 in proportion to their representation among all students with parental income less than $10,000.

For example, in 1970-71 the percent representation of minority students among all students with parental income less than $10,000 is (from Table B-1) 8.5% (1,539 x .85 ÷ 15,309). Health Professions Scholarships would therefore be $425,000 for 1970-71 (.085 x $5,000,000). Similar calculations are made for Health Professions Loans.

3. Other sources of financial aid, such as medical school scholarships, FISL, and AMA-ERF, are not itemized separately because of the difficulty in estimating future amounts, but would be expected to help meet a large part of the balance.

4. It is assumed that funds would be provided to subsidize interest payments on loans not otherwise covered and for compensating balances as collateral for the loans.

Table B-IV summarizes these costs for the $3,000 annual expenditure case. Interest subsidy is computed at 10% and compensating balances at 8% of accumulated debt for non-Health Professions loans.

Table B-IV - Estimated Funds to be Provided
($3,000 Annual Expenditure Case)

Academic Year	Grants		Loans			
	Health Professions	Balance to be met	Health Professions	Balance to be met	Maximum Interest Subsidy at 10%	Maximum Compensating Balance as Collateral at 8%
	(in millions)					
1970-71	$ .425	$1.735	$ .748	$1.012	$ .101	$ .081
1971-72	.553	2.487	.884	1.606	.262	.209
1972-73	.680	3.500	1.090	2.330	.495	.400
1973-74	.808	4.572	1.360	3.040	.799	.639
1974-75	.978	5.582	1.560	3.810	1.180	.944
1975-76	1.110	6.460	1.770	4.430	1.623	1.300

APPENDIX C - LOAN PAYBACK CONSEQUENCES FOR PHYSICIAN ENTERING LOW-REMUNERATION PRACTICE

To investigate whether loan repayments under the proposed plan might pose extreme financial burden to physicians entering low-remuneration practice (e.g., ghetto health centers), a sample payback schedule was computed. The results of this computation are presented in Table C-I.

The relevant computational details for the example presented are the following:

1. The loan amount used was the maximum of $8,000 ($1,500 for each of the first two years and $2,500 for each of the last two years).

2. Income for the low-remuneration practice was taken from known rates of payment to physicians in O.E.O.-funded Neighborhood Health Centers and grew from $18,000 in the first year of practice to $28,000 in the sixth year.

3. Interest payments were computed at a simple interest rate of 10% on the outstanding loan balance. These interest payments were assumed to be subsidized through four years of medical school and three postgraduate years, after which they would be paid by the physician.

4. The annual repayment rate was taken as 9% of gross income. A portion of this total is for interest payment and the remainder is for principal repayment.

The results of Table C-I show that the reasonable payback schedule suggested would result in loan repayment within six years of professional employment (low-remuneration service) and within thirteen years of loan initiation.

Military service was not included in the example, but its inclusion would simply delay repayment by two years at a cost of $1,600 in additional interest. This interest could be subsidized or paid by the physician.

The time duration of interest subsidy is an important policy variable. The cost

of interest subsidy for the example case is as follows:

Total Years of Interest Subsidy	Cost of Subsidy per Maximum Loan
4 (medical school)	$1,800
7 (+ 3 postgraduate)	$4,200
9 (+ 2 military service)	$5,800

Thus, if the physician assumes interest payments upon graduation from medical school, over twice as many loans can be generated with the same amount of institutional capital than if interest subsidy continues through three postgraduate years.

Table C-1: Payback Schedule for Maximum Loan

Yr	Maximum loan amount	Post training income	Total payment (interest and principal at 9% of gross income)	Debt balance at beginning of year	Interest payment (at 10%)	Principal repayment	Debt balance at end of year
1	$1,500			$1,500.00	$ 150.00		$1,500.00
2	1,500			3,000.00	300.00		3,000.00
3	2,500			5,500.00	550.00		5,500.00
4	2,500			8,000.00	800.00		8,000.00
5	(internship)			8,000.00	800.00		8,000.00
6	(residency)			8,000.00	800.00		8,000.00
7	(residency)			8,000.00	800.00		8,000.00
8		$18,000.00	$1,620.00	8,000.00	800.00	$ 820.00	7,180.00
9		20,000.00	1,800.00	7,180.00	718.00	1,082.00	6,098.00
10		24,000.00	2,160.00	6,098.00	609.80	1,550.20	4,547.80
11		24,000.00	2,160.00	4,547.80	454.78	1,705.22	2,842.58
12		26,000.00	2,340.00	2,842.58	284.26	2,055.74	786.84
13		28,000.00	865.52	786.84	78.68	786.84	--

APPENDIX D - AID FUNDS REQUIRED FOR ALL MEDICAL STUDENTS

The need for reversing the present trend of reduced allocations by the Federal government for the Health Professions Loan and Scholarship Programs is evident from a review of current sources of support (see Table D-1) and current student need.

Although the problem of financing the minority student is a major one, the problem of financing all students is ten times greater. To put this problem in perspective, the need for all medical students whose family income is less than $10,000 has been estimated, using the assumptions developed for computing need for minority students. The results are shown in Table D-2.

Trends in the Health Professions Loan Program are shown in Table D-3 and the terms of various loan funds are summarized in Table D-4.

The parental income distribution of medical students is skewed toward high family incomes as shown in Table D-5, which compares the parental income of medical students in 1963-64 and 1967-68. There is the real risk that the shortage of available funds will act to further skew the population of medical students toward two extremes - the poor minority student and the affluent non-minority student. Long-term solutions to the financial aid problems of the medical students are a matter of urgency if schools are to continue to recruit students without regard to their ability to finance their education.

Table D-1 - Scholarship and Loan Funds Awarded from 1963-64 to 1969-70

Academic Year	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
			($ in thousands)				
Total Student Aid	$14,568	$18,047	$22,041	$25,153	$28,997	$32,301	NA
Total Scholarships	3,901	4,096	4,512	6,379	8,653	11,206	NA
Health Professions Scholarships	---	---	---	1,769	3,293	5,293	7,226
Other Scholarships	3,901	4,096	4,512	4,610	5,360	5,913	NA
Total Loans	10,667	13,951	17,529	18,774	20,344	21,095	NA
Health Professions Loans	---	5,680	9,593	13,655	15,075	15,109	7,924
AMA-ERF Loans	4,118	4,134	4,279	1,947	723	817	NA
NDEA Loans	2,947	529	292	421	305	196	NA
Other Loans	915	1,384	1,736	1,220	2,301	2,581	NA
School Loans	2,687	2,224	1,630	1,531	1,939	2,392	NA
Number of Schools	87	88	88	89	94	99	101
Total Enrollment	32,001	32,428	32,835	33,423	34,528	35,833	37,756

Table D-2

Academic Year	Total Number of Students with Parental Income under $10,000	Total Financial Aid (Scholarships and Loans) Required
1970-71	15,309	$45,927,000
1971-72	16,654	49,962,000
1972-73	18,012	54,036,000
1973-74	19,420	58,260,000
1974-75	19,919	59,757,000
1975-76	20,381	61,143,000

Table D-3 - Health Professions Student Loan Program

	Fiscal 1965	Fiscal 1966	Fiscal 1967	Fiscal 1968	Fiscal 1969	Fiscal 1970
Number of Participating Schools*	87	87	88	93	98	100
Amount Requested	$11,539,969	$11,712,356	$14,457,828	$16,884,425	$19,030,340	$22,113,875
Amount Allocated	$ 6,628,788	$ 9,834,259	$14,217,790	$14,736,357	$14,240,726	$ 7,924,353
Percent of Request	57.4%	83.9%	98.3%	87.2%	74.8%	35.8%
Number of Students Enrolled in Participating Schools	31,416	32,040	32,883	33,595	35,117	37,756
Number of Students Assisted	7,186	9,475	11,303	12,484	12,375	
Percentage of Students Assisted	23%	30%	34%	37%	35%	

* All figures are for medicine only. Dentistry, osteopathy, optometry, pharmacy, podiatry, and veterinary medicine are <u>not</u> included.

Table D-4 - Loan Fund Terms	Health Professions Student Loan Program	Federally Insured Student Loan Program (3)	American Medical Association Education & Research Foundation Loan Guarantee Program (1) (3)
First Year of Operation	Fiscal 1965	Fiscal 1966	1962
Nature	Loans from federal government administered by medical schools	Loans from commercial savings and loan associations, credit unions, banks, and other participating lenders, insured by the federal government and administered by the lending institutions	Loans from commercial banks guaranteed by the Foundation and administered by the lending institutions
Maximum Loan	$2,500 per year	$1,500 per year $7,500 maximum	$ 1,500 per year $10,000 maximum from AMA-ERF $15,000 maximum from all sources
Deferment of Repayment	During internship and residency, for up to five years During active duty in uniformed service or in Peace Corps, for up to three years	During active duty in uniformed service or in Peace Corps or VISTA	During internship and residency
Period Before Repayment Begins	One year	Nine months	Four months
Repayment Period	Ten years ($15/mo. minimum may be set by schools)	Repayment must be completed within fifteen years of issuance of first loan ($30/mo. min.)	Ten years ($30/mo. min.)
Current Interest Rate	3% during repayment period	7% during in-school, deferment, and repayment periods (2)	6 1/2% during in-school and deferment periods 7 1/2% during repayment period
Cancellation	Up to 50%, at rate of 10% per year of practice in a designated shortage area Up to 100%, at rate of 15% per year of practice in a shortage area determined to be a rural area characterized by low family income		

(1) Interns and residents are also eligible to borrow from this source.

(2) Federal government pays interest for students whose adjusted family income is less than $15,000/year during in-school and deferment periods.

(3) These terms are particularized for California and details may vary in other states.

Table D-5 - Comparison of Family Income of Medical Students with Undergraduate College Freshmen Families and All Families

Family Income	1963-64 Medical Students	1963-64 Undergraduate College Freshmen	1963-64 All Families	1967-68 Medical Students	1967-68 Undergraduate College Freshmen	1967-68 All Families
Less than $10,000	51%	NA	80%	37%	45%	66%
$10,000-14,999	20	NA	15	22	29	22
$15,000-24,999	15	NA	4	21	18	10
$25,000 and above	14	NA	1	20	8	2

[Ref. 1, Ref. 2, Ref. 7]

References

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